

**MAIL STOP APPEAL BRIEF-PATENTS**

Attorney Docket No.: 25771X

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re patent application of:

Uri L. ZILBERMAN

Conf. No.: 5141

Application No.: 10/685,803

Art Unit: 3732

Filed: October 16, 2003

Examiner: Matthew M. Nelson

For: **DENTAL CROWNS**

**APPEAL BRIEF**

This is an appeal to the Board of Patent Appeals and Interferences from the decision of Examiner Matthew M. Nelson, mailed December 3, 2009, rejecting claims 1 – 10. Appellant filed a Notice of Appeal and Pre-Appeal Brief Request for Review on June 3, 2010. A Notice of Panel Decision was mailed on June 21, 2010. With the concurrently submitted petition and fee for a one-month extension of time, this Appeal Brief is timely submitted on or before the due date of September 3, 2010.

**TABLE OF CONTENTS**

<u>Item</u>	<u>Page Number</u>
(i) Real party in interest	3
(ii) Related appeals and interferences	4
(iii) Status of claims	5
(iv) Status of amendments	6
(v) Summary of claimed subject matter	7
(vi) Grounds of rejection to be reviewed on appeal	10
(vii) Arguments	11
(viii) Claims appendix	18
(ix) Evidence appendix	22
(x) Related proceedings appendix	23

**REAL PARTY IN INTEREST**

The real party in interest is the Assignee of one hundred percent interest,  
URI-DENT LTD., of 7 Haofe Street, POB 7284, Ashkelon 78172 of Israel.

**RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences, or judicial proceedings that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

**STATUS OF CLAIMS**

A. Total Number of Claims in Application

There are 10 claims pending in the application.

B. Current Status of Claims

1. Claims pending: Claims 1 – 10
2. Claims withdrawn from consideration but not canceled: None
3. Claims canceled: Claim 11
4. Claims allowed: None
5. Claims rejected: Claims 1 – 10
6. Claims objected to: None

C. Claims on Appeal

The claims on appeal are claims 1 – 10. A clean copy of the claims on appeal is reproduced in **Appendix A**.

**STATUS OF AMENDMENTS**

No claim amendments have been entered since the Office Action was mailed on December 3, 2009.

### **SUMMARY OF CLAIMED SUBJECT MATTER**

The presently claimed subject matter is generally directed to a dental crown.

In particular, independent **claim 1** is directed to a dental crown (Figs. 1 – 3C, reference numeral “10”) configured to be readily mountable in a patient’s mouth as part of a treatment of primary teeth and permanent molars (*see, e.g.*, original specification page 1, lines 10 – 12), the dental crown having a natural appearance and color of a vital tooth (*see, e.g.*, original specification page 1, line 10 and page 3, line 26), and consisting of:

a thermoplastic material layer configured to define a tooth shaped top surface (*see, e.g.*, original specification page 1, line 14; Figs. 1 – 3C, reference numeral “12”), and

depending flexible side surfaces extending continuously from said tooth shaped top surface towards a bottom portion of the dental crown (*see, e.g.*, original specification page 1, line 16; page 3, lines 15 – 16; and Figs. 1, 2, and 3C reference numeral “14”), said thermoplastic material layer being configured to enable dimensional stability and sufficient resilience of the crown (*see, e.g.*, original specification page 3, lines 23 – 26), and

a bottom portion of at least one of said depending flexible continuous side surfaces comprising an undercut defining an inwardly directed inner surface of said bottom portion (*see, e.g.*, original specification page 1, lines 16 – 21; Figs. 1, 2, 3C reference numeral “16”), the resilience of the flexible depending side

surfaces and the undercut made in the bottom portion of at least one of the flexible side surfaces (*see, e.g.*, original specification, page 4, lines 16 – 18), enabling the dental crown to be directly mounted on a primary tooth or permanent molar.

Furthermore, independent **claim 10** is directed to a permanent dental crown (Figs. 1 – 3C, reference numeral “10”) configured to be readily mounted in a patient’s mouth as part of treatment of primary teeth and permanent molars (*see, e.g.*, original specification page 3, lines 18 – 21),

the dental crown consisting of a layer of acetal homopolymer resin (*see, e.g.*, Fig. 1; original specification page 2, lines 27 – 28; and original specification page 3, lines 1 – 2) configured to define a tooth shaped top surface (*see, e.g.*, original specification page 1, line 14; Figs. 1 – 3C, reference numeral “12”) and depending flexible side surfaces extending continuously from the top surface towards a bottom portion of the dental crown (*see, e.g.*, original specification page 1, line 16; page 3, lines 15 – 16; and Figs. 1, 2, and 3C reference numeral “14”),

said layer of the acetal homopolymer resin being configured to provide dimensional stability and desired resilience of the crown (*see, e.g.*, original specification page 3, lines 23 – 29), and

at least one of said depending flexible continuous side surfaces being formed within the bottom portion of the crown with an undercut defining an inwardly directed inner surface of said bottom portion (*see, e.g.*, original



specification page 1, lines 16 – 21; Figs. 1, 2, 3C reference numeral "16"), the resilience of the flexible side surfaces and the undercut enabling the dental crown to be readily mountable on a primary tooth or permanent molar (see, e.g., original specification page 1, line 18; original specification page 4, lines 16 – 18; and Fig. 3C reference numeral "16").

**GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

First, whether claims 1 – 9 are unpatentable under 35 U.S.C. 103(a) over U.S. Patent No. 5,487,663 (“Wilson”) in view of U.S. Patent No. 3,647,498 (“Dougherty”).

Second, whether claim 10 is unpatentable under 35 U.S.C. 103(a) over Wilson and Dougherty further in view of U.S. Patent No. 6,186,790 (“Karmaker”).

## **ARGUMENTS**

***1. The Office Action improperly rejects claims 1 – 9 as unpatentable under 35 U.S.C. 103(a) over Wilson in view of Dougherty.***

Appellant respectfully submits that the rejection of claims 1 – 9 is improper and should be reversed for at least the following reasons.

***a. The Examiner ignores the effect of the phrase “consisting of” recited in independent claim 1.***

Independent claim 1 recites in part a dental crown “configured to be readily mountable in a patient's mouth as part of treatment of primary teeth and permanent molars ... consisting of a thermoplastic material layer configured to define a tooth shaped top surface and depending flexible side surfaces” (emphasis added). Unlike the transitional phrase “comprising,” the phrase “consisting of” specifically “excludes any element, step, or ingredient not specified in the claim.” MPEP § 2111.03 (emphasis added).

In spite of this prohibition, independent claim 1 is rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Wilson in view of Dougherty. Specifically, the Office Action indicates on page 2 that Wilson discloses a dental crown “consisting of a thermoplastic layer.” Appellant respectfully disagrees. Wilson requires a composite restorative to form a crown. See Wilson col. 4 lines 8-24 and 47-55. More specifically, Wilson requires a two layer structure (a jacket and a composite restorative) to form a crown. *Id.*

Also, Wilson's crown is not readily mountable as it must be combined with a composite restorative when in use. See *id.* The presently claimed subject

matter is directed toward a crown that is “directly mounted” on a primary tooth or permanent molar. The requirement for a composite restorative material removes Wilson as an applicable reference, since the “consisting of” language recited in claim 1 specifically excludes any feature not recited in the claims. There is no motivation in Wilson to create a crown without the composite restorative material, and none of the other cited references cures this deficiency of Wilson. The other references are cited as allegedly teaching other features of the claimed subject matter, but not for teaching or suggesting these features of claim 1. By requiring a “composite restorative,” Wilson fails to teach or suggest a dental crown “configured to be readily mountable ... and consisting of ... a thermoplastic material layer” as recited in claim 1. Thus, alone or combined the cited prior art fails to disclose or suggest all the features of claim 1, and fails to prompt a person of ordinary skill in the relevant field to combine the cited prior art in the manner claimed.

Notwithstanding and in addition to the above, Appellant further submits that it is improper to combine Wilson with Dougherty as allegedly teaching a dental crown with “the color of a vital tooth and being made of a specific thermoplastic material.” As acknowledged on page 3 of the Office Action, this feature is not taught or suggested in Wilson. To make up for this deficiency, the Office Action looks to Dougherty as allegedly teaching a thermoplastic material “further comprising pigment or filler,” indicating that it would have been obvious to modify the crown of Wilson with the materials taught in Dougherty. Office Action

at 3 (emphasis added). This is improper, since such a combination is precluded by the “consisting of” language in claim 1. Reciting “consisting of” excludes “pigment or filler” since neither “pigment” nor “filler” is recited in the claim. For at least this reason, claim 1 is allowable over Wilson in view of Dougherty, and the rejection under 35 U.S.C. § 103(a) should be reversed.

***b. Wilson and Dougherty fail to teach or suggest an “undercut defining an inwardly directed inner surface” in “the bottom portion of at least one of the flexible side surfaces” of “a thermoplastic material layer.”***

Notwithstanding and in addition to the above, Appellant also disagrees with the statement on page 3 of the Office Action that it would have been obvious in view of Wilson col. 2, lines 46 – 46 to form “an undercut defining an inwardly directed inner surface” as recited in claim 1. Wilson teaches that fitting a crown to a tooth is made using “stainless steel crowns,” Wilson col. 2, line 58 (emphasis added), which is precluded by the “consisting of” language recited in claim 1. Furthermore, in describing the Wilson crown, Wilson teaches at col. 3, lines 2-6 that “it is another objective of the present invention to provide an appliance which is readily bonded to restorative material obviating the need of negative draft or undercut to snap on or engage the tooth preparation” (emphasis added), and further teaches that “[i]n stark contrast to existing crown configurations, it is an important feature of the present invention that the side walls, or walls, 20 are essentially straight.” Wilson at col. 3, lines 61 – 65 (emphasis added). This directly contradicts and teaches away from the “undercut defining an inwardly directed inner surface” in “the bottom portion of at least one of the flexible side

surfaces" of "a thermoplastic material layer" recited in claim 1, and is also precluded by the "consisting of" transition recited in claim 1 (as discussed in section a above), since Wilson's side walls are "for all intents and purposes, parallel." *Id.* (emphasis added). For at least these reasons, Appellant submits that the rejection of claim 1 under 35 U.S.C. § 103(a) is improper and should be reversed.

***c. Claims 2 – 9 are also allowable at least for their dependence from independent claim 1.***

Appellant further submits that claims 2 – 9 are also allowable at least because they depend from independent claim 1. For at least these reasons, Appellant submits that the rejection of claims 2 – 9 under 35 U.S.C. § 103(a) should also be reversed.

***2. The Examiner improperly rejects claim 10 as unpatentable under 35 U.S.C. 103(a) over Wilson and Dougherty further in view of Karmaker.***

Appellant respectfully submits that the rejection of claim 10 is improper and should be reversed for at least the following reasons.

***a. The Examiner ignores the effect of the phrase "consisting of" recited in independent claim 10.***

Independent claim 10 recites in part a dental crown "consisting of a layer of acetal homopolymer resin configured to define a tooth shaped top surface and depending flexible side surfaces" (emphasis added). The Examiner states at page 3 that "[c]laim 10 is rejected similarly to the above [rejection of claims 1 – 9]. Appellant respectfully disagrees with the rejection. For the same reasons

discussed in section 1a of this paper (which are incorporated by reference in this section), the Examiner improperly ignores the effect of the “consisting of” language in its rejection of claim 10, and thus, alone or combined, Wilson and Dougherty fail to disclose or suggest all the features of claim 10, and fail to prompt a person of ordinary skill in the relevant field to combine the cited prior art in the manner claimed.

**b. The Office Action improperly combines Karmaker with Wilson and Dougherty.**

While Appellant submits that this is sufficient to support a reversal of the rejection of claim 10, Appellant further submits that it is also improper to combine Karmaker with Wilson and Dougherty. As acknowledged on page 3 of the Office Action, Wilson and Dougherty “fail to show the polymer material as claimed.” Office Action at 3. To make up for this deficiency, the Examiner cites to Karmaker. Office Action at 4. Specifically, the Examiner indicates that Karmaker teaches a dental crown “formed of a variety of thermoplastic polymer material.” Office Action at 4 (emphasis added). The Examiner also characterizes this material as a “polyacetal polymer.” Office Action at 4 (emphasis added). Neither characterization, however, is a dental crown “consisting of a layer of acetal homopolymer resin” (emphasis added), which excludes the “variety of thermoplastic polymer material” disclosed in Karmaker. Accordingly Karmaker, alone or combined with Wilson and Dougherty, fails to teach or suggest each and every element of independent claim 10. For at least these additional reasons,

the rejection of claim 10 is improper and should be reversed.

# # # #



**CONCLUSION**

For the foregoing reasons, Appellant respectfully submits that the Examiner's rejection of the presently pending claims was erroneous. Accordingly, Appellant respectfully requests reversal of the Examiner's decision.

The Commissioner is authorized to charge Deposit Account No. 14-0112 for any additional charges in connection with this appeal.

The Examiner is welcomed to contact the undersigned attorney if such contact would be helpful in the further prosecution of this case.

Respectfully submitted,  
**THE NATH LAW GROUP**

Date: August 30, 2010

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## **APPENDIX A**

### **Claims on Appeal**

1. (Previously presented) A dental crown configured to be readily mountable in a patient's mouth as part of a treatment of primary teeth and permanent molars, the dental crown having a natural appearance and color of a vital tooth and consisting of:

a thermoplastic material layer configured to define a tooth shaped top surface; and

depending flexible side surfaces extending continuously from said tooth shaped top surface towards a bottom portion of the dental crown, said thermoplastic material layer being configured to enable dimensional stability and sufficient resilience of the crown, and

a bottom portion of at least one of said depending flexible continuous side surfaces comprising an undercut defining an inwardly directed inner surface of said bottom portion, the resilience of the flexible depending side surfaces and the undercut made in the bottom portion of at least one of the flexible side surfaces, enabling the dental crown to be directly mounted on a primary tooth or permanent molar.

2. (Previously presented) A dental crown according to claim 1, wherein said thermoplastic material comprises a polymer selected from polyacetal, polyacrylate, polymethylmethacrylate (PMMA), polyamide, polyaryletherketone (PAEK), polyetherketone (PEK), polyetheretherketone (PEEK), polyetherimide (PEI), polyethersulfone (PES), polysulfone (PSU), and mixtures thereof.
3. (Previously presented) A dental crown according to claim 2, wherein said polymer is a homo- or co-polymer of acetal resin, polyetheretherketone (PEEK) or polymethylmethacrylate (PMMA).
4. (Previously presented) A dental crown according to claim 1, wherein said thermoplastic material comprises at least one of the following: fibers, fillers, pigments and reinforcements.
5. (Original) A dental crown according to claim 1, formed by injection molding.
6. (Previously presented) A dental crown according to claim 5, produced by a mass production injection molding method, said mass production injection molding method comprising:
  - providing a multi-element mold; and
  - employing the multi-element mold to injection mold a dental crown from a thermoplastic polymer material.

7. (Original) A dental crown according to claim 6, wherein said multi-element mold includes an ejector, which is being operated to eject the molded crown following opening the multi-element mold.

8. (Original) A dental crown according to claim 1, formed by compression molding.

9. (Original) A dental crown according to claim 1, formed by machining.

10. (Previously presented) A permanent dental crown configured to be readily mounted in a patient's mouth as part of treatment of primary teeth and permanent molars,

the dental crown consisting of a layer of acetal homopolymer resin configured to define a tooth shaped top surface and depending flexible side surfaces extending continuously from the top surface towards a bottom portion of the dental crown,

said layer of the acetal homopolymer resin being configured to provide dimensional stability and desired resilience of the crown, and

at least one of said depending flexible continuous side surfaces being formed within the bottom portion of the crown with an undercut defining an inwardly directed inner surface of said bottom portion, the resilience of the flexible side

surfaces and the undercut enabling the dental crown to be readily mountable on a primary tooth or permanent molar.

11. (Canceled).

**APPENDIX B**

**Evidence Appendix**

**NONE**

**APPENDIX C**

**Related Proceedings Appendix**

**NONE**